

BIRDS OF KINGSTON REST NORTH-EAST KIMBERLEY, WESTERN AUSTRALIA

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SUMMARY

This paper is based on data gathered on visits to Kingston Rest between 1984 and 1999. A total of 202 species were recorded during these visits and for each species we give details of status, habitat preferences and breeding. Information is also provided on major habitat types, other fauna, land use and climate.

INTRODUCTION

Kingston Rest Farm (King Location No 345) 16°02'26"S 128°24'52"E is located on Great Northern Highway between the Saw Ranges and the Dunham River about 70km south-west of Kununurra in the Kimberley region of Western Australia (Figure 1). It comprises ten farms (Figure 2) on separate titles totalling 4,000 hectares and a special lease of 3,500 hectares that includes the Dunham Pilot Dam. The ten farms were totally cleared of vegetation during the 1970's except for occasional trees that were left for shade. Since then there has been extensive regrowth of *Acacia colei*, *Bauhinia cunninghamii* and *Eucalyptus* spp. over some areas particularly on Farm 1, 2, 3 and 8. In 1999 the irrigated area consisted of 430 hectares, where a variety of grasses are grown to sell as high grade hay. Some seasonal horticultural crops such as melon and pumpkin are also grown. From 1,000 to

3,000 head of cattle are distributed over the remaining area.

Kingston Rest (formerly known as Kingston's Rest) was named after a drover who used to stop and rest his team there. Previously part of Dunham River Station, it was excised in the late 1960's by an American pastoralist-investor, W.R. Goddard. A dam was constructed on Arthur Creek (a tributary of the Dunham River) to irrigate the land for cattle grazing and to grow experimental grain crops, including sorghum. Initially it was to be a pilot project to a scheme which if successful would have a second stage involving the damming of the Dunham River at Dunham Gorge and the irrigation of between 30,000 and 40,000 acres of land. For a number of reasons the venture did not meet the expectations of the developer and the government of the day, and the second stage was abandoned. Nothing had been

recorded of the avifauna on Kingston Rest until we began visiting the area in 1984.

METHOD AND STUDY AREA

Coate *et al.* visited the Dunham Pilot Dam and listed 45 species on 1 July 1984. In July 1991 accompanied by members of the Western Australian Naturalists Club, Coate twice visited the dam and the surrounding Saw Ranges. On the 6 and 7 December 1992 and 10 and 11 July 1994 visits were made over the whole area. Between 7 February – 2 March 1996 and 3–23 February 1997 Coate resided on the property and compiled extensive bird notes. Additional time was spent there between 8–11 November 1998, 28 June – 11 July 1999 and 29 October – 2 November 1999. Lodge first visited the area in 1993 and has made frequent visits since, sometimes staying several days. He has compiled extensive breeding records. Johnstone visited two sites in the Saw Ranges at 16°02'25"S 128°18'50"E and 16°01'35"S 128°19'55"E on 9 March 1984; the entire area from 8–11 September 1996. An aerial survey was carried out by Johnstone on 31 January and a ground survey including the irrigation area on 1 February 1998. F. O'Connor *et al.* visited on 7 January 1995 and 16 September 1995 and provided useful information. Additional historical and specimen data are available from the Storr-Johnstone bird data bank.

For the purpose of this paper we recognise ten major habitat types: Dunham Pilot Dam, Saw Ranges, the Gorge, Diversion Dam, Tailings Dam, the Billabong, Nancy's Crossing, the Swamp, Irrigated Farmlands and Dunham River.

Dunham Pilot Dam. Built in 1968, this

dam is situated within the Saw Ranges on the catchment of Arthur Creek. The area of water behind the dam can cover 3,200 hectares, however it has never attained its full capacity and most years averages 800 to 1,000 hectares. The shallower areas are extensively covered with *Nymphoides indica*, *Nymphaea violacea*, *Pseudoraphis spinescens* (spiny mud grass) and *Chara* sp. (freshwater algae). There are many stands of dead trees drowned by rising water.

Saw Ranges. First recorded by surveyor C.W. Nyulasy in 1886 as the Red Saw Range it is part of the King Leopold Ranges. They are composed of 1,800,000 year old sandstone and shales of the Kimberley group and are extremely rugged. Vegetation is mainly a covering of spinifex (*Triodia* spp.) and acacia with patches of *Grevillea wickhamii*, *Grevillea refracta*, *Calytrix exstipulata* an occasional *Buchanania obovata*, *Eucalyptus brevifolia*, *Eucalyptus brachyandra* and an unnamed *Livistona* sp. The area between the Diversion Dam and Dunham Pilot Dam is on the lease of Doon Doon (formerly Dunham River Station).

The Gorge. This includes Arthur Creek (named by surveyor C.W. Nyulasy in 1886) and links the Dunham Pilot Dam and Diversion Dam. They contain remnant rain forest vegetation and tall paperbark trees (*Melaleuca leucadendra*) as well as *Pandanus aquaticus*, *Lophostemon grandiflorus*, *Barringtonia acutangula*, *Livistona* sp., *Nauclera orientalis*, *Ficus coronulata*, *Ficus racemosa*, *Terminalia* spp., *Flueggea virosa*, *Eucalyptus brachyandra* and *Acacia colei*. At the eastern entrance to the Gorge where the country opens out and away from the creek line, is an open woodland savannah of cane grass (*Sorghum* sp.), *Adansonia gregorii*, *Eucalyptus miniata*, *Eucalyptus tectifica*,

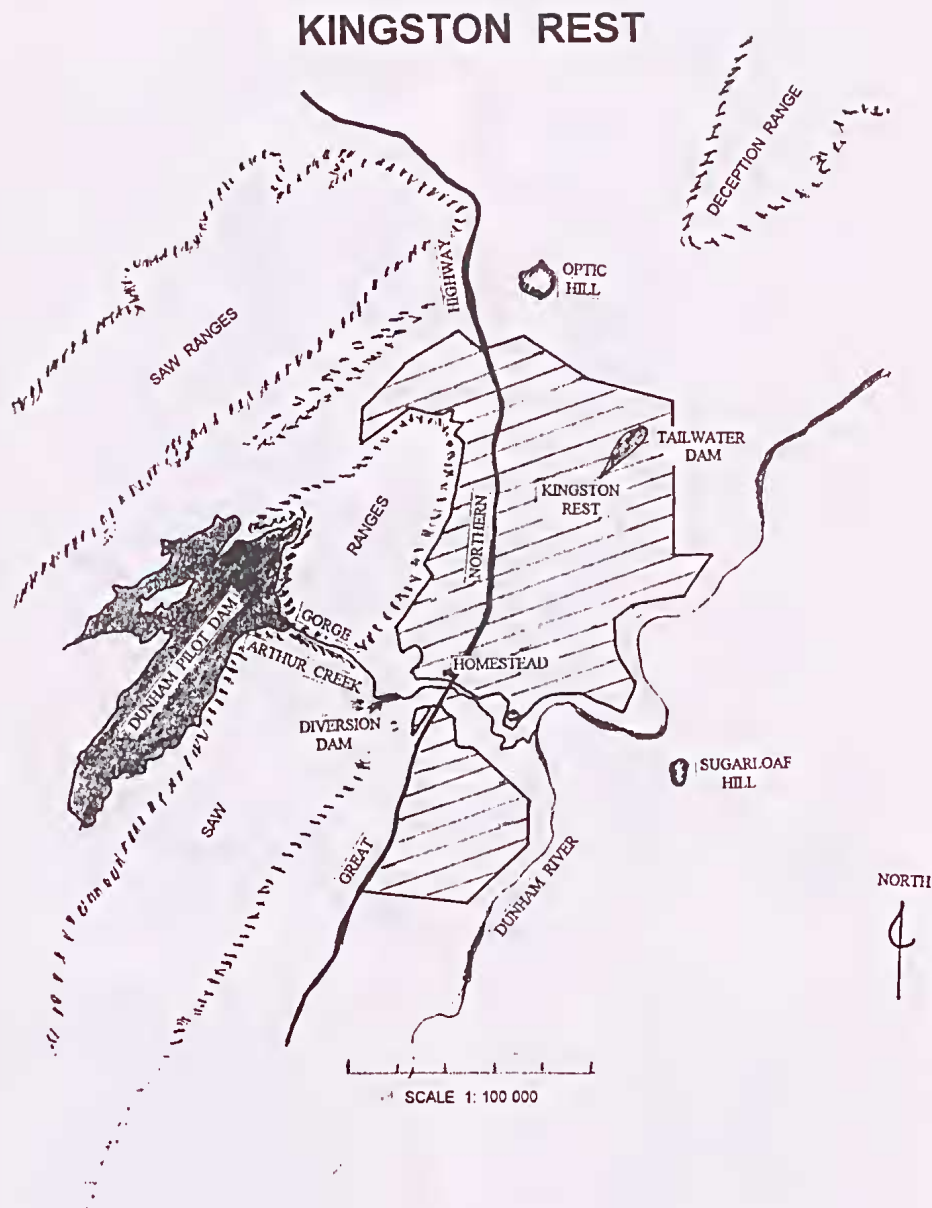
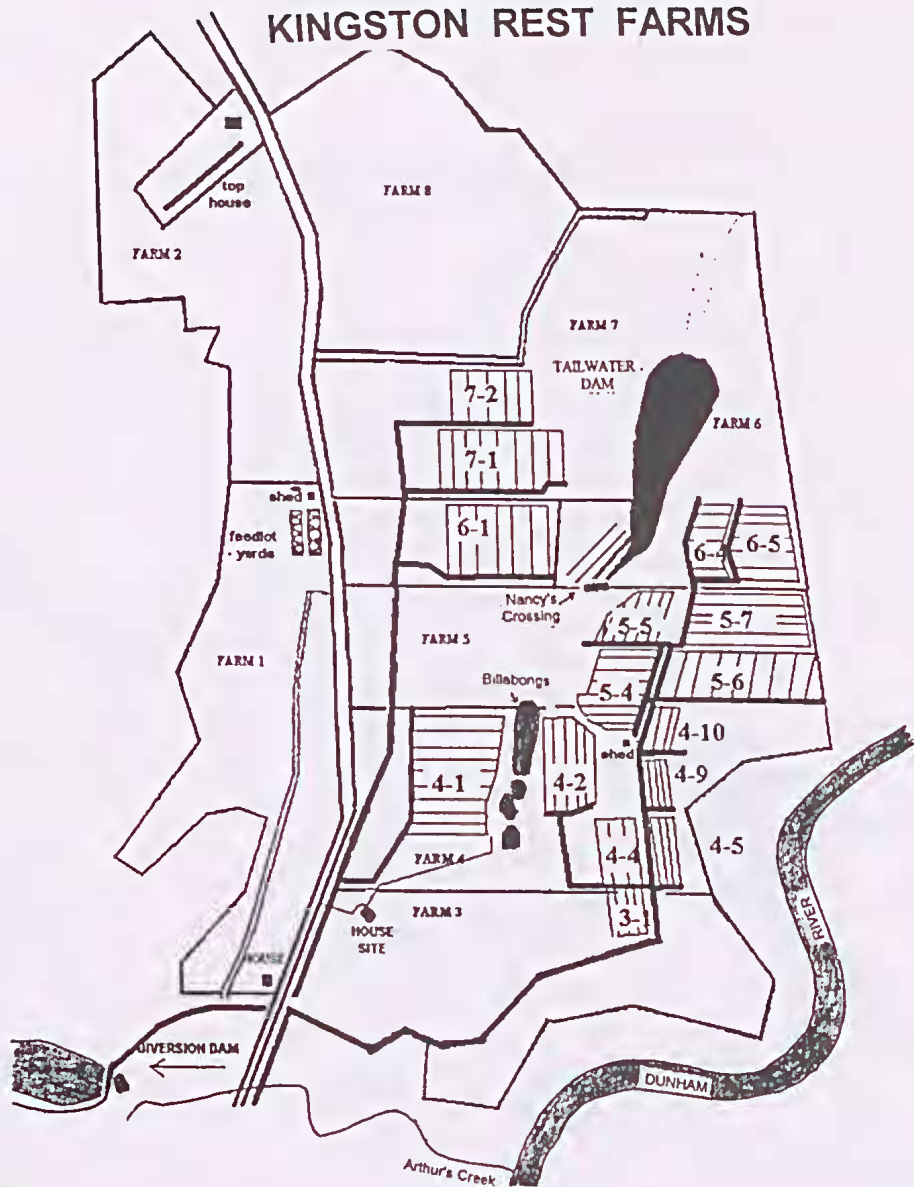


Figure 1. Showing Kingston Rest (hatched), and location of other features mentioned in text.

KINGSTON REST FARMS



Farm-Paddock	Crops - 1999		
3-1	Milgarra (<i>Clitoria ternatem</i>)	5-5	Leucaena (<i>Leucaena leucocephala</i>)
4-1	Fine cut Rhodes (<i>Chloris gayana</i> sp.)	5-6	Forage Sorghum, Pangola & Lablab (<i>Lablab purpureus</i>)
4-2	Centro (<i>Centrosema pascuorum</i>)	5-7	Mixed Pangola & Callide Rhodes
4-4	Sorghum (<i>Bicolor</i> sp.)	6-1	Fine cut Rhodes
4-5	Callide Rhodes (<i>Chloris gayana</i> sp.)	6-4	Pangola (<i>Digitaria decumbens</i>)
4-9	Sorghum (<i>Bicolor</i> sp.)	6-5	Leucaena (<i>Leucaena leucocephala</i>)
4-10	Callide Rhodes (<i>Chloris gayana</i>)	7-1	Pumpkins, Fine cut Rhodes, Milgarra
5-4	Fine cut Rhodes & Sorghum	7-2	Pumpkins, Melons

Figure 2. Showing location of Kingston Rest farms and crops grown in 1999.

Eucalyptus confertiflora, *Corymbia* sp., *Pandanus spiralis*, *Dolichandrone* sp., *Dodonaea physocarpa*, *Grevillea pteridifolia*, *Acacia colei* and *Buchanania obovata*.

Diversion Dam. Situated about one kilometre from the Gorge and about one kilometre from the homestead. When full it contains about seven hectares of water, which is diverted into the irrigation system as required. The dam is fringed by *Melaleuca leucadendra* trees growing to about 20 metres in height. Where it joins into Arthur Creek there are dense stands of *Pandanus aquaticus*. There are a number of dead trees standing in the water, and the water lily *Nymphoides indica* and *Nymphaea violacea* cover much of the surface of the water. The bulrush *Typha domingensis* also forms small stands.

Tailings Dam. Built in 1994 to impound water at the "tail end" of the irrigation system and prevent it escaping into the Dunham River. When full it covers 40 hectares. In dry years when Dunham Pilot Dam is low, water from it can be pumped back into the main irrigation channel. The Tailings Dam is mostly shallow and very suitable for waders and waterfowl. A sometime dense coverage of *Nymphoides indica* extends over much of it. There are dead trees in the water suitable for nesting and refuge. Some Para Grass (*Brachearia mutica*) has recently been established on the south-west side.

The Billabong. A narrow body of water on the same drainage as the Tailings Dam contains about 4 hectares of water most of the year. Regrowth of scattered *Bauhinia cunninghamii* trees and *Carrissa lanceolata* bushes are around the edge. At times there can be dense coverage of *Nymphaea violacea*, *Monochoria cyanea* and *Nymphoides indica* over much of the water surface. On the periphery are

sedge beds of the Chinese Water Chestnut (*Eleocharis* sp.).

Nancy's Crossing. Situated between the Billabong and Tailings Dam. A small wetland adjacent to it contains a dense area of the bulrush (*Typha domingensis*).

The Swamp (16°03'506"S 128°25'757"E). About 10 hectares is ephemeral, usually drying up toward the end of the wet season. During the wet season it contains extensive sedge beds of the Chinese Water Chestnut (*Eleocharis* sp.) and stands of the mauve flowering *Sesbania erubescens* and the yellow flowering *Sesbania cannabina*.

Irrigated Farmlands. Consist of 430 hectares of laser planed paddocks connected by a series of channels to control the flow of water to the requirements of a particular crop. In 1999 experiments with 'ponded pasture' using run off from irrigated water began on Farms 4 and 6 where shallow dams no more 300cm to 600cm deep have been created. These additional wetland areas are very suited to waterfowl and waders. The ponded area on Farm 4 is between nine and ten hectares and on Farm 6 between five and six hectares.

Dunham River (referred to as the Denham River for many years). Named in 1882 by M. Durack, a pioneer pastoralist, after the Rev Father Dunham of Brisbane, Queensland. It is approximately 153km in length and flows into the Ord River near Kununurra. It borders the south eastern and eastern portions of Kingston Rest. Riparian vegetation along the banks include *Ficus racemosa*, *F. coronulata*, *Melaleuca leucadendra*, *M. argentea*, *Lophostemon grandiflorus*, *Adansonia gregorii*, *Pandanus aquaticus* and *P. spiralis*. During the dry season the river dries up into a series of long pools over much of its length.

CLIMATE

Temperature

Kingston Rest does not keep temperature records. Records from Kununurra are included as a guide only.

Maximum Temperature (°C)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years of Record
Mean Daily	36.6	35.4	36.9	35.6	33.5	31.0	30.8	32.7	36.8	38.9	39.3	37.5	35.4	12
Highest Daily	43.0	41.5	43.0	40.0	38.5	36.4	36.5	38.1	45.1	43.5	45.1	43.5	45.1	12
Lowest Daily	26.4	27.0	27.0	26.0	25.6	17.8	24.3	24.0	29.5	28.1	28.0	26.0	17.8	12

Monthly rainfall records 1969–1997.

The following data is based on rainfall records for Kingston Rest from the Bureau of Meteorology over a 25 years period (to end 1997).

Rainfall (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years of Record
Mean	36.6	35.4	36.9	35.6	33.5	31.0	30.8	32.7	36.8	38.9	39.3	37.5	35.4	12
Monthly														
Highest	43.0	41.5	43.0	40.0	38.5	36.4	36.5	38.1	45.1	43.5	45.1	43.5	45.1	12
Monthly														
Lowest	26.4	27.0	27.0	26.0	25.6	17.8	24.3	24.0	29.5	28.1	28.0	26.0	17.8	12
Monthly														

ANNOTATED SPECIES LIST

Nomenclature follows Johnstone (2001)

CASUARIIDAE

Emu *Dromaius novaehollandiae* (Latham)

One record, a half grown bird found entangled in boundary fence in 1993.

Moderately common to common in flocks (up to 10). A nest (10 eggs) in irrigated paddock in March 1997.

King Quail *Coturnix chinensis*

PHASIANIDAE

Brown Quail *Coturnix ypsilophora*

Scarce. At least two flushed from grass in Leucaena paddock on 7 January 1995; two on Farm 3 and two on Farm 4–5 on

25 February 1996; one male in low wet grass on 1 February 1998; two males flushed during hay mowing on 17 July 1999; and several observed in crops in November–December. Mainly found in wet crops in irrigation areas.

ANATIDAE

Magpie Goose *Anseranas semipalmata*

Moderately common to common. Pairs and small flocks up to 100 (also large flocks up to 1,000 in 1996) around Tailings Dam, Pilot Dam and irrigated pasture. Breeding at Swamp on 14 February 1997 (one nest with ten eggs and one with 11 eggs [plus six old nests]). Also nests with eggs at Tailings Dam on 1 March 1999.

Plumed Whistling Duck *Dendrocygna eytoni*

Common to very common (in flocks up to 2,000) at Tailings Dam and Dunham Pilot Dam, occasionally in small flocks (up to 10) at Diversion Dam.

Wandering Whistling Duck
Dendrocygna arcuata

Common to very common at Tailings Dam and Dunham Pilot Dam, occasionally in small flocks (up to 20) at Diversion Dam.

Black Swan *Cygnus atratus*

Uncommon. A flock of six at Tailings Dam or Dunham Pilot Dam between May 1998 and April 1999.

Radjah Shelduck *Tadorna radjah*

Common (in flocks up to 30) at Tailings Dam and Dunham Pilot Dam (large concentration at Dunham Pilot Dam on 14 June 1992). Small flocks or pairs at Diversion Dam and irrigation channels. Breeding; Dunham Pilot

Dam; one with 12 large young on 6 July 1991; nest containing 11 eggs at the bottom of a 100cm hollow in an old tree stump standing in water, with a large Olive Python curled up over eggs on 5 April 1994 (when the python was removed a large bulge was noted in its belly about the size of a Radjah Shelduck), ten small young on 22 July 1998.

Green Pygmy Goose *Nettion pulchellus*
Common to scarce on dams. Small flocks (four–20) on 9 September 1996.

Grey Teal *Anas gracilis*

Common to very common on dams. Scarce (ten) at Tailing Dam in October 1999.

Pacific Black Duck *Anas superciliosa*

Common to very common on all dams and freshly irrigated paddocks.

Pink-eared Duck *Malacorhynchus membranaceus*

Uncommon. Small numbers on Dunham Pilot Dam in July 1994; on Tailings Dam between 7 February and 2 March 1996; and pairs and small groups in September 1996 and October 1999.

Hardhead *Aythya australis*

Moderately common on Dunham Pilot Dam on 11 July 1994. Small flocks (up to 20) on Tailings Dam between 7 February and 2 March, on 9 September 1996, and 8–11 October 1998. About 30 on Billabong in July 1999.

PODICIPEDIDAE

Australasian Grebe *Tachybaptus novae-hollandiae*

Moderately common in small numbers on all dams. Ten on Tailings Dam on 9

September 1996 also ten in November 1998 and up to 30 at the Billabong and Tailings Dam on 30 October 1999.

Hoary-headed Grebe *Poliiocephalus poliocephalus*

Scarce. One on Tailings Dam on 12 February 1996.

ANHINGIDAE

Darter *Anhinga melanogaster*

Moderately common on all visits. Dunham Pilot Dam – six nests (with eggs) on 5 April 1994; eight nests (one with four eggs and another five) built on the forks of dead trees standing in water on 22 March 1995. Breeding also reported on Tailings Dam.

PHALACROCORACIDAE

Great Cormorant *Phalacrocorax carbo*

Moderately common (up to 80) in dead trees in Dunham Pilot Dam on 31 October 1999. Several immatures amongst the flock.

Little Black Cormorant *Phalacrocorax sulcirostris*

Moderately common to common at Tailings Dam and Dunham Pilot Dam (flocks up to 50). Six on Dunham Pilot Dam and 15 on Tailings Dam on 9 September 1996; 18 in dead trees on Tailings Dam on 10 September 1996, not recorded in February 1997, and 12 at Tailings Dam on 9 October 1998.

Little Pied Cormorant *Phalacrocorax melanoleucos*

Moderately common in ones, twos and flocks (up to 20) along irrigation channels and on dams. Four nests (lined with green leaves) with birds in

attendance on Tailings Dam on 9 September 1996.

PELECANIDAE

Australian Pelican *Pelecanus conspicillatus*

Moderately common in ones, twos or small flocks (up to 20) along irrigation channels and dams. In dry years there are usually several flocks on Dunham Pilot Dam. Not recorded in October 1999.

ARDEIDAE

White-necked Heron *Ardea pacifica*

Scarce to moderately common in irrigated paddocks (six in October 1999) and around dams. Not recorded in February 1997 or October 1998.

Pied Heron *Ardea picata*

Moderately common at dams on most visits. Not recorded in February 1997. One at the Swamp in July 1999 and Tailings Dam in October 1999.

White-faced Heron *Ardea novae-hollandiae*

Moderately common (ones or twos) on all visits, in irrigated paddocks, along irrigation channels and at dams. Common on flooded irrigated paddocks in July 1999 and in October 1999 (about 40). Nest (small young) 7m from the ground in Boab Tree (*Adansonia gregorii*) on 29 October 1999.

Great Egret *Ardea alba*

Common in ones, twos and in loose flocks (up to eight) in irrigated paddocks, irrigation channels and dams.

Intermediate Egret *Ardea intermedia*

Common in ones, twos and small flocks

(up to 25) in irrigated areas, Tailings Dam, Nancy's Crossing (about 40 on 23 February 1996) and the Billabong. Not recorded at Dunham Pilot Dam in July 1994 and December 1992.

Little Egret *Egretta garzetta*

Moderately common around dams and the Billabong. Twelve at Nancy's Crossing on 10 February 1996. Not recorded in February 1997.

Cattle Egret *Ardea ibis*

Scarce to common mainly in small flocks (up to 30, once 36 on bank of Tailings Dam on 10 September 1996) on irrigated paddocks and in paddocks with cattle up to 1997. Numbers increased to about 90 including many in breeding plumage in October 1998, up to 100 in July 1999 and about 200 (many in breeding plumage) in October 1999.

Rufous Night Heron *Nycticorax caledonicus*

Common on all irrigation channels and dams. Roosts in trees along the Dunham River and Arthur Creek.

Black Bittern *Ixobrychus flavicollis*

Moderately common along Arthur Creek, The Gorge and the Diversion Dam. Five along main irrigation channel between the homestead and Diversion Dam on 14 February 1996. A nest (four large young) in a *Melaleuca leucadendra* tree near the Diversion Dam in March 1995.

THRESKIORNITHIDAE

Glossy Ibis *Plegadis falcinellus*

Moderately common at Tailings Dam on most visits. Common (flocks up to 20) on freshly irrigated paddocks and the Dunham Pilot Dam in October 1999.

Australian White Ibis *Threskiornis aethiopicus moluccus*

Moderately common on irrigation channels, Tailings Dam and paddocks.

Straw-necked Ibis *Threskiornis spinicollis*

Common (flocks up to 150–200) in paddocks and around the irrigated areas.

Royal Spoonbill *Platalea regia*

Moderately common (mainly in small flocks) at the Tailings Dam, Nancy's Crossing and irrigation drains.

Yellow-billed Spoonbill *Platalea flavipes*

Uncommon. Several in February 1997 and October 1999.

CICONIIDAE

Black-necked Stork *Ephippiorhynchus asiaticus*

Moderately common in ones and twos around irrigation channels and dams, flooded paddocks and hay paddocks.

ACCIPITRIDAE

Osprey *Pandion haliaetus*

One record. A single bird at Dunham Pilot Dam on 6 July 1991.

Black-shouldered Kite *Elanus caeruleus*

Uncommon. One observed on numerous occasions around the irrigated areas in December 1998 and occasionally in 1999 and a pair breeding in late June 2000.

Letter-winged Kite *Elanus scriptus*

One observed several times between 10 July 1994 and 15 August 1994, one at dusk near Nancy's Crossing and one at a hay storage area in October 1999.

Pacific Baza *Aviceda subcristata*

Scarce. One harassed by two Goshawks in the Gorge on 9 September 1996, one in forest canopy near Diversion Dam on 10 September 1996 and one reported by M. Morcombe in July 1999.

Square-tailed Kite *Hamirostra isura*

One near Dunham Pilot Dam on 6 July 1991.

Black-breasted Buzzard *Hamirostra melanosternon*

Uncommon. Reported at Dunham Pilot Dam in July 1991. Recorded several times over irrigated area in February 1996, one over irrigated area on 3 July 1999.

Black Kite *Milvus migrans*

Scarce to common, in ones, twos and small flocks (up to 30) throughout the area. Group of 30 following harvesters on 10 September 1996. Not recorded between 3 February and 23 February 1997.

Whistling Kite *Haliastur sphenurus*

Moderately common in all habitats. Several nests near the Diversion Dam, Swamp and Dunham River. Nest (two eggs) 5m above water in a dead tree in Dunham Pilot Dam on 5 April 1994; nest (large young) at Diversion Dam on 10 July 1994; One sitting on nest in dead tree in Dunham Pilot Dam on 25 March 1995, large young flushed from nest at Tailings Dam on 9 September 1996; and fledged young (at same nest as in July 1994) at Diversion Dam on 3 July 1999.

Brown Goshawk *Accipiter fasciatus*

Moderately common. Favouring wooded habitats. Two subspecies *A. f. didimus*

and *A. f. fasciatus* occur in the area, the latter a winter visitor (May–September).

Collared Sparrowhawk *Accipiter cirrocephalus cirrocephalus*

Uncommon. Recorded at Dunham Pilot Dam on 6 December 1994, also pair attacking finches coming in to roost at Nancy's Crossing at dusk on several occasions in February 1996.

Little Eagle *Aquila morphnoides*

Scarce. One in July 1994, one on a nest near homestead on 8 September 1996 and one on Arthur Creek on 10 September 1996.

Wedge-tailed Eagle *Aquila audax*

Uncommon, in ones or twos. One disturbed from the ground at entrance to the Gorge, feeding on remains of a Little Red Flying Fox on 30 October 1999.

White-bellied Sea-Eagle *Haliaeetus leucogaster*

Uncommon. A pair have a nest in large tree on the Dunham River. Occasionally seen at Dunham Pilot Dam and around the Tailings Dam.

Spotted Harrier *Circus assimilis*

Uncommon in ones and twos, usually over regrowth areas and cleared paddocks. One immature on 5 February 1992. A nest (five eggs) 10m above ground in *Bauhinia cunninghamii* tree on 27 April 1995; and large flat stick nest (three eggs) freshly renovated with a few new sticks and finer sticks as lining, 8m up in a *Bauhinia cunninghamii* tree on 28 December 1995.

Swamp Harrier *Circus approximans*

Uncommon. Two at Dunham Pilot Dam

and one over irrigated paddock on Farm 6.

FALCONIDAE

Brown Falcon *Falco berigora*

Common over the whole area mainly in ones and twos. Up to 25 on newly mown hay paddock on 2 July 1999.

Australian Kestrel *Falco cenchroides*

Moderately common around paddocks and Dunham Pilot Dam.

Australian Hobby *Falco longipennis*

Moderately common in ones and twos. A pair catching flying locusts disturbed as we walked through thick *Sesbania cannabina* at the Swamp on 1 March 1996. A pair, often seen catching locusts and on several occasions observed taking Button Quail (*Tumix* spp.) flushed from grass during hay cutting operations. One harassing finches coming to roost at Nancy's Crossing on 17 February 1996 and one catching grasshoppers on 1 Feb 1998.

Peregrine Falcon *Falco peregrinus*

Scarce. Two in farm areas in January 2000.

Black Falcon *Falco subniger*

Uncommon. One often seen over farmlands in February 1996 one hunting over a flooded paddock on 10 September 1996 and in July 1999, and one sitting close to a freshly killed Plumed Whistling Duck on 30 October 1999.

GRUIDAE

Brolga *Grus rubicunda*

Moderately common in ones, twos and small flocks up to 20. At times they cause

severe damage to watermelon crops by spearing them with their beak endeavouring to get to the seeds. Many unripened melons are sometimes damaged until a ripe one with fully developed seed is found. Nest (two added eggs) on a small grassy flat close to the Dunham River on 31 January 1998.

RALLIDAE

Buff-banded Rail *Gallirallus philippensis*

Uncommon. Mainly single birds observed along irrigation channels, areas of *Typha* and sometimes flushed from paddocks while mowing hay. Up to five seen and flushed from grass while mowing on 14 December 1998.

Baillon's Crake *Porzana pusilla*

Scarce. Single birds observed at the Diversion Dam, one at Nancy's Crossing on 12 February 1996 and Tailings Dam on 29 October 1999.

Australian Spotted Crake *Porzana fluminea*

Scarce. One killed by a Black Kite when flushed from hay paddock during mowing operations on 1 September 1999 and moderately common in farmlands in January–February 2000.

Spotless Crake *Porzana tabuensis*

Scarce. Three heard in *Typha* at Nancy's Crossing on 7 July 1999 and two on 30 October 1999.

White-browed Crake *Porzana cinerea*

Moderately common at Diversion Dam, Dunham Pilot Dam and occasionally in the Gorge. Sometimes flushed while mowing hay paddocks.

Purple Swampphen *Porphyrio porphyrio*

Uncommon. About twenty at the

Swamp on 14 February 1997 (four nests with two eggs and incubation was well advanced with one egg chipping, one nest with five fresh eggs and four disused nests), one at Dunham Pilot Dam on 8 July 1999 and about 20 at the Tailings Dam on 30 October 1999.

Black-tailed Native-hen *Gallinula ventalis*

Three hundred around the Tailings Dam (in groups up to 30) between 7 February and 2 March 1996. A transient visitor.

Eurasian Coot *Fulica atra*

Moderately common, mainly in small flocks (up to ten) occasionally large aggregations (up to 80). Eighty at Tailings Dam on 9 September 1996. Not recorded in July or October 1999.

OTIDIDAE

Australian Bustard *Otis australis*

Common in irrigated areas in ones, twos, threes, small flocks (up to 18) and occasionally larger flocks (up to 120). Eighty-one in a paddock of lucerne feeding on an infestation of Cut Worm Grub (*Heliothis amigera*) on Farm 4-I on 14 December 1998, at least 20 over the irrigated areas in July 1999 and 120 (some males displaying) in October 1999.

TURNICIDAE

Red-backed Button-quail *Turnix maculosa*

Moderately common in irrigated hay paddocks. Many immatures flushed during mowing operations on 28 December 1995, three edge of *Typha* near Tailings Dam on 10 September 1996, and often observed during mowing operations in June 1999.

Little Button-quail *Turnix velox*

Moderately common. Occasionally flushed from grass when mowing. An adult and a half grown chick froze at night in the beam of a spotlight (adult picked up) on 14 February 1996.

SCOLOPACIDAE

Swinhoe's Snipe *Gallinago megala*

Uncommon. Occasional birds. Six observed on Farm 5-7 where hay had recently been harvested on 10 February 1996. When disturbed four flew low and landed within several hundred metres the remaining 2 flew up very high, circled, and then landed at the far end of the paddock one kilometre away. About 12 birds were observed over several days from 13 October 1998 and a single bird observed on a number of occasions over several weeks in December 1998.

Little Curlew *Numenius minutus*

Uncommon. Eleven in paddock near Tailings Dam on 1 March 1996.

Marsh Sandpiper *Tringa stagnatilis*

Uncommon to moderately common. One at Dunham Pilot Dam in July 1991 and at least 8 in October 1999, several at Tailings Dam in February 1996 and 8 in October 1999, and ten around newly created ponded pasture area on Farm 6 on 1 November 1999.

Common Greenshank *Tringa nebularia*

Moderately common at Tailings Dam in February and September 1996 and 12 in October 1998 also six along irrigation channels and on flooded paddocks in October 1999.

Wood Sandpiper *Tringa glareola*

Moderately common in ones and twos

at Tailings Dam in September 1995, February 1996–7, September 1996 October 1998 and a flock of 20 in October 1999.

Common Sandpiper *Tringa hypoleucos*

Uncommon. Several at Tailings Dam in February 1996, 1997 and September 1996 and several at Dunham Pilot Dam and the Billabong in October 1999.

Sharp-tailed Sandpiper *Calidris acuminata*

Moderately common. Several at Dunham Pilot Dam in November 1992 and about 20 in October 1999, several at the Tailings Dam in September 1995, February 1996 and September 1996, and about 80 in flocks (up to 20) feeding in newly mown and irrigated hay paddocks on 1 November 1999.

Curler Sandpiper *Calidris ferruginea*

Scarce. One at Tailings Dam in February 1996.

Painted Snipe *Rostratula benghalensis*

Scarce. Three birds (one female) at Dunham Pilot Dam on 24 July 1991, and one at the Swamp on 1 March 1996.

JACANIDAE

Comb-crested Jacana *Metopidius gallinaceus*

Common to very common on all dams and the Billabong. At least 100 (in three groups) on Dunham Pilot Dam on 12 December 1998. Very common on Tailings Dam (100's) in March 1999. Breeding; two pair each with four small chicks at Dunham Pilot Dam on 14 February 1992, a nest (of algae with four eggs) amongst water lily leaves at edge of the Diversion

Dam on 5 April 1994, three pair with young, and one poorly constructed nest (four eggs) made of just a few pieces of water weed on a water lily leaf, at the Diversion Dam on 18 March 1995, two nests (three and four eggs) were amongst water lilies on Dunham Pilot Dam on 9 September 1996, pair with one chick on the Diversion Dam on 8 September 1996, and a nest with three eggs on 9 September 1996 and two nests (three and four eggs) on 11 September 1996.

BURHINIDAE

Bush Stone-curlew *Burhinus grallarius*

Moderately common throughout the area. Often heard at night around the homestead.

RECURVIROSTRIDAE

Black-winged Stilt *Himantopus himantopus*

Moderately common at Dunham Pilot Dam and Tailings Dam. Less frequent in small swamps along Dunham River. Not recorded in July 1999.

CHARADRIIDAE

Masked Lapwing *Vanellus miles*

Common. Mainly at irrigated areas and dams. Breeding; one pair with small chicks on 14 February 1992, and many breeding in July 1998 at Dunham Pilot Dam – two nests (four eggs each) one 30m and the other 10m from water edge, one lined with dry algae (*Chara* sp.) and the other with pieces of dried grass.

Pacific Golden Plover *Pluvialis fulva*

Moderately common at Tailings Dam. Five in February 1996, six on 9 February 1997 and 18 on 9 November 1998.

Red-capped Plover *Charadrius ruficapillus*

Uncommon. Small numbers at Tailings Dam in February 1996.

Black-fronted Plover *Charadrius melanotos*

Common. Dams and along irrigation channels. Breeding; a pair with newly hatched chicks at Tailings Dam on 8 October 1998 and 30 April 1999, at Dunham Pilot Dam – nest (one egg) 50m from water edge on 30 August 1995, nest (two eggs) 50m from water edge on 9 September 1995, nest (three eggs) in a patch of gravel about 100m from water edge on 22 July 1998 and many others appeared to be breeding, nest (three eggs) on airstrip on 28 September 1999, and a pair with a newly hatched chick near an irrigation channel on 30 October 1999.

Oriental Plover *Charadrius veredus*

Uncommon. 18 at Tailings Dam on 16 September 1995.

Red-kneed Dotterel *Erythronyx cinctus*

Moderately common to common around Dunham Pilot Dam and Tailings Dam. Many immatures in October 1999.

GLAREOLIDAE

Australian Pratincole *Stiltia isabella*

Common on ploughed and fallowed paddocks. Plentiful around Dunham Pilot Dam on 28 July 1993.

A flock of 20 on bare cut crop on 9 September 1996 and about 600 on 30 October 1999.

Oriental Pratincole *Glareola maldivarum*

Common during the wet season (October–March) with flocks of up to

several thousand. Many hundreds on newly ploughed ground on 14 December 1998. Flocks of many thousand suddenly arrived and then moved on 24 October 1999.

LARIDAE

Silver Gull *Larus novaehollandiae*

Scarce. Recorded on Dunham Pilot Dam on 6 December 1992

Gull-billed Tern *Sterna nilotica*

Scarce. Several at Tailings Dam between 11 and 14 February 1996.

Caspian Tern *Sterna caspia*

Scarce. At Tailings Dam; one on 16 September 1995 and one on 22 February 1996

Whiskered Tern *Sterna hybrida*

Moderately common. Small numbers at Dunham Pilot Dam in July 1991, November 1992, February 1996, April and July 1999, and small flocks in breeding plumage at Tailings Dam on 14 February 1996.

White-winged Black Tern *Sterna leucoptera*

Scarce. One on 14 February 1996 sitting apart from a small flock of Whiskered Tern which it seemed to be accompanying.

COLUMBIDAE

Emerald Dove *Chalcophaps indica*

Scarce. Two birds (one an immature) in Gorge on 28 November 1999.

Common Bronzewing *Phaps chalcoptera*

Scarce. One near Dunham Pilot Dam in July 1991.

Crested Pigeon *Ocyphaps lophotes*

Common throughout most of the area. An albino occasionally seen with a flock near the irrigated area in 1996 and 1997.

Spinifex Pigeon *Geophaps plumifera*

Common in Saw Ranges and revegetated areas. Breeding; a nest (two eggs) amongst small stones on scree slope on burnt country in the Saw Ranges on 25 February 1996, two nests (two eggs each) in red soil, lined with dried spinifex (*Triodia* sp.) in stony spinifex country near Dunham Pilot Dam on 25 April 1996.

White-quilled Rock Pigeon *Petrophassa albipennis*

Moderately common in Saw Ranges and the Gorge.

Diamond Dove *Geopelia cuneata*

Common throughout the area.

Peaceful Dove *Geopelia striata*

Very common throughout the area in ones, twos and small flocks (up to 20).

Bar-shouldered Dove *Geopelia humeralis*

Moderately common in the Gorge, along riverine and revegetated areas. Nest (two eggs) 2m above ground in a dead acacia at Arthur Creek on 9 September 1996.

PSITTACIDAE

Red-tailed Black Cockatoo

Calyptorhynchus banksii

Common to very common. Mainly in flocks (up to 50) coming to drink at irrigation channels and in open woodland. Frequently observed feeding on fruit of *Terminalia canescens*.

Galah *Cacatua roseicapilla*

Moderately common in small flocks (up to eight).

Little Corella *Cacatua sanguinea*

Very common in flocks (up to 300) near homestead attracted to Wild Passionfruit (*Passiflora foetida*), stockyards and paddocks where hay has been spread for stock. Cause severe damage to water melon crops by opening them for seed. Seeds from pumpkin are also eaten.

Sulphur-crested Cockatoo *Cacatua galerita*

Moderately common in pairs and small flocks (up to six) throughout the area. Observed eating seed of paddy melon and occasionally water melon.

Cockatiel *Nymphicus hollandicus*

Scarce to common depending on season. Common in flocks in July 1993.

Rainbow Lorikeet *Trichoglossus haematodus*

Scarce to common. Their distribution and abundance is dependent on availability of flowers.

Varied Lorikeet *Trichoglossus versicolor*

Moderately common in 1997 otherwise scarce or uncommon. Dependent on seasonable blossom.

Red-winged Parrot *Aprosmictus erythropterus*

Common in all wooded habitats.

Northern Rosella *Platycercus venustus*

Moderately common in pairs and small flocks (up to six) mainly in woodland especially with *Eucalyptus miniata*.

Budgerigar *Melopsittacus undulatus*
Scarce to common depending on season.
Occasional flocks in July 1993 and July 1999.

CUCULIDAE

Pallid Cuckoo *Cuculus pallidus*
Uncommon. One in July 1996, July 1997, February 1997, October 1998 and July 1999, and three in October 1999.
Non breeding visitors from the south.

Brush Cuckoo *Cacomantis variolosus*
Moderately common. Calling persistently in February 1996, September 1996 and February 1997, also in October 1998 and October 1999. A chick with pin feathers in the nest of a Shining Flycatcher on 25 February 1996.

Black-eared Cuckoo *Chrysococcyx osculans*
Scarce. One at Dunham Pilot Dam on 31 October 1999.

Horsfield's Bronze-Cuckoo *Chrysococcyx basalis*
Uncommon mainly in ones or twos. One immature observed on 12 February 1996

Common Koel *Eudynamys scolopacea*
Common in February 1996, February 1997, October 1998 and October 1999.
A wet season migrant.

Channel-billed Cuckoo *Scythrops novaehollandiae*
Common summer visitor. Very vocal in February 1996, February 1997, October 1998 and October 1999.

CENTROPODIDAE

Pheasant Coucal *Centropus phasianinus*
Common throughout the area. Mainly

in tall grass, pandanus along watercourses and edges of dams.

STRIGIDAE

Barking Owl *Ninox connivens*
Moderately common in all wooded habitats. Two on 19 February 1992, one at side of irrigation channel on 29 October 1999, and often heard at night near the Diversion Dam.

Boobook Owl *Ninox novaeseelandiae*
Moderately common throughout the area. Several sitting on main road and preying on insects on 18 February 1997.

TYTONIDAE

Barn Owl *Tyto alba*
Uncommon. One in February 1996.

Grass Owl *Tyto capensis*
Moderately common in ones and twos on Farm 5 (paddocks 5-7, 5-6 and 5-5) and Farm 4 (paddocks 4-10 and 4-9). First noticed by Alan Garstone on 15 November 1995 while mowing hay. Favouring paddocks of mature Rhodes Grass and Pagnola (usually about knee high and at least four weeks old). At least six appear to be permanent residents. Remains of one caught in a mower sent to the Western Australian Museum.

PODARGIDAE

Tawny Frogmouth *Podargus strigoides*
Uncommon. A pair roosting on the ground beneath a palm tree on the Saw Ranges on 6 July 1991, single birds in the Gorge on 22 February 1996 and on the main road near the homestead on 23 February 1997, and several flushed along Arthur Creek and the Gorge in October 1999.

CAPRIMULGIDAE

Spotted Nightjar *Eurostopodus argus*

Uncommon to very common. Recorded in June 1992, July 1993 and February 1996. Occasionally flushed from sandstone slopes on the Saw Ranges. In May 1992 there was sudden irruption of Spotted Nightjar lasting for about a week and a half. During this time when shifting irrigation pipes at night there were estimated to be at least one bird every 40 metres on farm roads. There were many road kills. The birds disappeared as suddenly as they arrived. Between 26 April 1999 and 4 May 1999 an irruption of birds occurred on Farm 5-6 where a crop of lablab had recently been cut for hay. It was estimated that there was a Spotted Nightjar about every 10m over the paddock. Up to four observed each night while spotlighting during July 1999 and October 1999.

AEGOTHELIDAE

Australian Owlet-nightjar *Aegotheles cristatus*

Moderately common. One killed by vehicle on 6 February 1996, nest with three eggs in hollow spout of *Eucalyptus* sp. on 10 September 1996, and birds calling near Diversion Dam on 10 September 1996.

APODIDAE

Fork-tailed Swift *Apus pacificus*

Uncommon. About 30 flying slowly at a height of about 7m around 9m flowering bloodwoods (*Corymbia* sp) on 22 February 1996. They appeared to be catching insects.

ALCEDINIDAE

Azure Kingfisher *Alcedo azurea*

Moderately common along Arthur

Creek, Dunham River and Diversion Dam. Two small young in 60cm tunnel dug into a 180cm vertical bank eroded by Arthur creek on 5 April 1994, and an adult flushed from burrow near Diversion Dam in September 1996.

HALCYONIDAE

Blue-winged Kookaburra *Dacelo leachii*

Moderately common throughout the area. Mainly woodland and melaleuca along creeks.

Red-backed Kingfisher *Todiramphus pynthopygia*

Uncommon. Recorded in July 1984, July 1991, February 1996 and July 1999.

Sacred Kingfisher *Todiramphus sanctus*

Moderately common throughout the area. Very vocal in October 1999.

MEROPIDAE

Rainbow Bee-eater *Merops ornatus*

Common to very common on all visits. Large numbers roost at night in *Melaleuca leucadendra* at the Diversion Dam.

CORACIIDAE

Dollarbird *Eurystomus orientalis*

Moderately common breeding visitor October to March. A nest (three eggs) 100cm down a vertical hollow spout of a mature ghost gum (*Corymbia bella*) on bank of the Dunham River on 14 December 1995.

CLIMACTERIDAE

Black-tailed Treecreeper *Climacteris melanura*

Moderately common. Woodland near

Dunham Pilot Dam and base of Saw Ranges.

MALURIDAE

Variegated Fairy-wren *Malurus lamberti*

Moderately common in the Gorge and sandstone of the Saw Ranges elsewhere scarce.

Red-backed Fairy-wren *Malurus melanocephalus*

Common throughout the area except for the slopes on the Saw Ranges where they are scarce.

PARDALOTIDAE

Striated Pardalote *Pardalotus striatus*

Moderately common in woodland.

ACANTHIZIDAE

Weebill *Smicromnis brevirostris*

Moderately common in eucalypt woodland.

ACANTHIZIDAE

Green-backed Gerygone *Gerygone chloronotus*

Scarce. Confined to dense thickets in the Gorge and Saw Ranges. Two adults and one young being fed near the entrance of the Gorge on 22 February 1996, two in canopy of dense thicket in Saw Ranges (16°02'25"S 128°18'50"E) and two in thicket with palms, ferns and eucalypts (16°01'35"S 128°19'55"E).

MELIPHAGIDAE

Brown Honeyeater *Lichmera indistincta*

Common to very common. At least 20 visiting flowering *Lophostemon grandiflorus* in the Gorge on 9 November 1998. Recorded as very common along

creek with dense acacia and in river gums on 10 September 1996.

Singing Honeyeater *Lichenostomus virescens*

Uncommon. Dunham Pilot Dam in December 1992.

Grey-fronted Honeyeater *Lichenostomus plumulus*

Scarce or uncommon. Ones and twos on sandstone slopes and gullies of Saw Ranges.

Yellow-tinted Honeyeater *Lichenostomus flavescens*

Moderately common to common around dams and creek-side vegetation.

White-gaped Honeyeater *Lichenostomus unicolor*

Common along waterways and around the homestead.

White-throated Honeyeater *Melithreptus albogularis*

Uncommon. Pairs and small flocks. Favouring eucalypt woodland and thickets with flowering trees and shrubs.

Black-chinned Honeyeater *Melithreptus gularis*

Scarce. Small flock in woodland near Diversion Dam on 9 September 1996.

Blue-faced Honeyeater *Melithreptus cyanotis*

Scarce to moderately common. Attracted to flowering eucalyptus, melaleuca and grevillea (especially *Grevillea pteridifolia*)

Little Friarbird *Philemon citreogularis*

Common in all woodland habitats.



Dunham Pilot Dam and Saw Ranges – July 1999 (K.H. Coate).



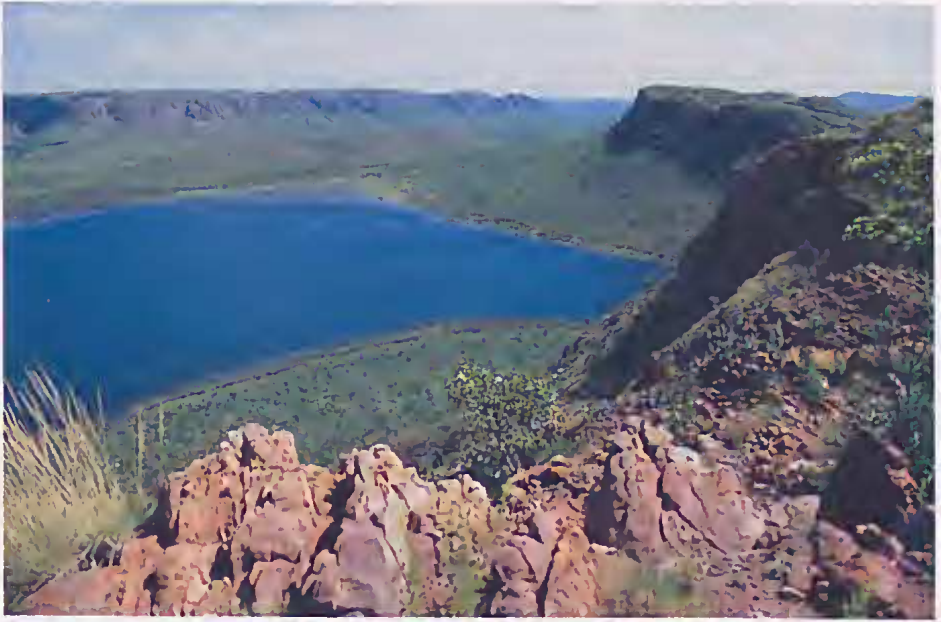
Billabong – February 1997 (K.H. Coate).



General over-view of farm and regrowth areas – February 1997 (K.H. Coate).



Diversion Dam – June 1998 (K.H. Coate).



Dunham Pilot Dam from Saw Ranges – February 1996 (K.H. Coate).



Hay paddock with Carr Boyd Range in background – July 1999 (K.H. Coate).



Saw Ranges above Dunham Pilot Dam – 1997 (K.H. Coate).



Tailings Dam – March 1996 (K.H. Coate).

Attracted to flowering *Terminalia*. A partly built nest found 3.5m above ground in a small snappy gum (*Eucalyptus brevifolia*) at Dunham Pilot Dam on 30 August 1995 contained two eggs on 9 September 1995.

Silver-crowned Friarbird *Philemon argenticeps*

Moderately common in all woodland habitats. Observed eating the ripened fruit of *Flueggia virosa* in February 1997.

Banded Honeyeater *Cissomela pectoralis*
Scarce to moderately common nomad. Most frequent when eucalypts, melaleuca and grevillea are flowering.

Bar-breasted Honeyeater *Ramsayornis fasciatus*

Scarce to moderately common around Diversion Dam and Arthur Creek where it prefers nesting above the water in over hanging branches of *Melaleuca leucadendra*. At the Diversion Dam, two half grown young in nest on 18 March 1995 and a pair building a nest on 18 February 1996.

Rufous-throated Honeyeater
Conopophila rufogularis

Common in all woodland habitats. Occasionally seen on dead trees in Tailings Dam and Dunham Pilot Dam. A freshly made nest (one egg) found suspended from the thin twig of a *Sesbania* sp. beneath a dense canopy of *Sesbania* growing in a metre of water on 18 March 1996, and two young flushed from nest in *Sesbania erubescens* growing in 60cm water towards the middle of the Swamp on 14 February 1997.

Yellow-throated Miner *Manorina flavigula*

Moderately common in pairs and small flocks in areas of open woodland.

EOPSALTRIIDAE

Jacky Winter *Microeca fascians*

Uncommon. Only recorded in February 1996.

White-browed Robin *Poecilodryas superciliosa*

Uncommon. One in dense acacia thicket on edge of Dunham Pilot Dam in July 1991 and another in the Gorge in July 1994.

POMATOSTOMIDAE

Grey-crowned Babbler *Pomatostomus temporalis*

Moderately common in all wooded habitats.

NEOSITTIDAE

Varied Sittella *Daphoenositta chrysoptera*

Uncommon. Small flocks in woodland areas.

PACHYCEPHALIDAE

Rufous Whistler *Pachycephala rufiventris*

Moderately common in ones and twos throughout the area.

Sandstone Shrike-thrush *Colluricincla woodwardi*

Moderately common in ones and twos. Gorges and gullies in the Saw Ranges.

Grey Shrike-thrush *Colluricincla harmonica*

Uncommon. Single birds in open woodland.

DICRURIDAE

Leaden Flycatcher *Myiagra rubecula*

Moderately common. Recorded in February 1996, September 1996, February 1997 and July 1999.

Restless Flycatcher *Myiagra inquieta*

Moderately common. Mainly around homestead and Diversion Dam in dense melaleuca.

Shining Flycatcher *Myiagra alecto*

Scarce to moderately common in the Gorge. Mainly in dense *Pandanus* and *Barringtonia*. At least ten in February 1997 and two in November 1998. A nest (two eggs) 1.5m from ground in a *Barringtonia acutangula* on 16 February 1996. The same nest occupied by a Brush Cuckoo with pin feathers on 26 February 1996.

Willie Wagtail *Rhipidura leucophrys*

Moderately common throughout the area.

Northern Fantail *Rhipidura rufiventris*

Scarce to common around the homestead and the Gorge. Not recorded in early November 1998. Alan Garstone found them reasonably common (at least 12) in the Gorge on 4 January 1999. Recorded in Saw Ranges (ones and twos, also an old nest) on 9 March 1989, ones and twos at Diversion Dam on 9 September 1996. Nest (two eggs) in the Gorge 3m above ground on a dead drooping twig in an open area surrounded by closed canopy on 28 December 1996.

Magpie Lark *Grallina cyanoleuca*

Moderately common to common throughout the area. A reasonably tight flock of about 60 observed on hay

paddocks after mowing on 30 October 1999. Two nests (each with four eggs) about 10m above ground near the homestead on 30 November 1995 and 9 November 1998.

CAMPEPHAGIDAE

Black-faced Cuckoo-shrike *Coracina novaeollandiae*

Common resident and winter visitor. All wooded habitats. A nest 4m above ground in a *Eucalyptus pruinosa* contained one freshly laid egg on 31 October 1999.

White-breasted Cuckoo-shrike *Coracina papuensis*

Common in wooded areas and around dams.

Ground Cuckoo-shrike *Coracina maxima*

Uncommon. A nest (three eggs) 7m above ground on a horizontal limb of a grey box (*Eucalyptus tectifica*) in open savannah near the northern boundary on 28 December 1996.

White-winged Triller *Lalage tricolor*

Common to very common. Mainly open woodland.

ORIOLIDAE

Yellow Oriole *Oriolus flavocinctus*

Uncommon. One in the Gorge February 1996, one at Diversion Dam on 10 September 1996 and 30 October 1999, one feeding in flowering *Bauhinia* on Dunham River on 10 September 1996.

Olive-backed Oriole *Oriolus sagittatus*

Moderately common. Reported feeding on the fruit of *Ficus racemosa* in the

Gorge on 16 February 1996. An old nest near Diversion Dam in February 1996.

ARTAMIDAE

White-breasted Woodswallow *Artamus leucorhynchus*

Moderately common to common around dams. One carrying nest material at Tailings Dam on 9 September 1996 and a pair feeding 4 juveniles at Dunham Pilot Dam 31 October 1996.

Masked Woodswallow *Artamus personatus*

Uncommon nomad. Flocks in 1998.

White-browed Woodswallow *Artamus superciliosus*

Small number seen in company of Masked Woodswallows in 1998.

Black-faced Woodswallow *Artamus cinereus*

Moderately common throughout the area.

Little Woodswallow *Artamus minor*

Moderately common. Mainly around Dunham Pilot Dam and Saw Ranges.

CRATICIDAE

Grey Butcherbird *Cracticus torquatus*

Scarce. Observed at Dunham Pilot Dam on 10 July 1994 and February 1996, ones, twos and one group of six in the Gorge in September 1996, three in a gully of the Saw Ranges on 13 February 1997, and three in the Gorge in July 1999 and October 1999.

Pied Butcherbird *Cracticus nigrogularis*
Common throughout the area.

Australian Magpie *Cracticus tibicen*

Uncommon. Mainly in ones or twos. A nest (one half grown chick) 7m from the ground in a cabbage gum (*Eucalyptus grandifolia*) on 14 November 1995.

CORVIDAE

Torresian Crow *Corvus orru*

Common in ones, twos and small flocks (up to eight) attracted to fires, habitation and flooded paddocks and up to 30 in hay paddocks while mowing. Observed feeding on opened melons in October 1999. Breeding; a nest (three young) 10m up in a grey box (*Eucalyptus tectifica*) on 13 September 1995, nest (five eggs) 12m up in a *Eucalyptus grandifolia* on 18 September 1995, nest (five eggs) 10m up in a *Corymbia polycarpa* on 15 October 1995, nest (four eggs) built on tank stand at homestead on 30 November 1995, and nest (large young) 10m up in *Corymbia polycarpa* about 0.5km from another nest on 9 September 1996.

PTILONORHYNCHIDAE

Great Bowerbird *Ptilonorhynchus nuchalis*

Moderately common especially near homestead. Eating fruit of *Ficus racemosa* in the Gorge on 16 February 1996. Thin nest of sticks (one egg) 5m above rocks in a leafy *Terminalia hadleyana* on the side of the Gorge on 9 September 1996.

ALAUDIDAE

Singing Bushlark *Mirafra javanica*

Common to very common over irrigated and pastured areas. Moderately common around Dunham Pilot Dam on 18 December 1995. Two nests (two and three eggs) on ground in an area of

sparse grass on 1 February 1998, another nest (two eggs) in low Rhodes grass on 1 February 1998, and three nests (newly hatched chicks – two, three and three) on 10 February 1998.

MOTACILLIDAE

Australian Pipit *Anthus australis*

Moderately common in farmlands and open areas around dams

Yellow Wagtail *Motacilla flava*

Uncommon. One alongside an irrigation channel on Farm 3 on 10 February 1996.

PASSERIDAE

Zebra Finch *Taeniopygia guttata*

Moderately common in flocks (up to 300)

Double-barred Finch *Taeniopygia bichenovii*

Common, especially along Arthur Creek, Dunham River and around dams. Nests with eggs and hatchlings on 10 September 1996, and two nests (both five eggs) in *Capparis spinosa* bush 150cm above ground at Tailings Dam on 6 July 1999.

Long-tailed Finch *Poephila acuticauda*

Common to very common over much of the area. Breeding on Diversion Dam; nest (eight eggs) in hollow limb of dead tree well out in water on 5 April 1994, nest (five eggs) made from dry grass lined with green seed heads of spiny mud grass (*Pseudoraphis spinescens*) growing in water, in 8cm deep hollow of dead tree and 360cm above water on 25 March 1995, and several other pairs nesting in hollow spouts of other dead trees standing in water.

Masked Finch *Poephila personata*

Very common around Dunham Pilot Dam on 8 February 1996. Generally moderately common in most habitats except the irrigated pasture where they are uncommon. A dead bird with a band (025-05704) taken from the radiator of a farm truck on 10 June 1993. It had been banded eight months previously 29km west of Kununurra and 90km distance from Kingston Rest; also one in company of Gouldian Finches at Dunham Pilot Dam on 16 February 1996.

Crimson Finch *Neochmia phaeton*

Common. Breeding; nest (four eggs) in hollow limb of dead tree well out in water on Dunham Pilot Dam on 5 April 1994, two nests (five and six eggs) in pandanus on edge of Dunham River on 30 April 1994, and nesting in *Pandanus aquaticus* along Arthur Creek, under eaves of homestead, in machinery shed and the cab of a farm tractor in February 1997.

Star Finch *Neochmia ruficauda*

Very common around irrigated areas. Common around Dunham Pilot Dam on 8 February 1996. Many hundreds roost at night in typha wetland at Nancy's Crossing. Birds carrying nesting material on 9 November 1998. A round globular nest (six eggs) built just below the top of a 1m high crop of centro in an irrigated paddock on 25 April 1995 and another on 27 March 1997.

Painted Finch *Emblema pictum*

Moderately common in Saw Ranges in February 1996, September 1996 and September 1997. Eight at Optic Hill on 15 February 1996.

Yellow-rumped Mannikin *Lonchura flaviprymna*

Moderately common on irrigated pasture in small numbers (20 to 30) often with Chestnut-breasted Mannikin. Roosts at Nancy's Crossing in *Typha domingensis* with Chestnut-breasted Mannikin. Nests (freshly laid eggs) in Pangola and Callide Rhodes grass on Farm 5 on 9 February 1996. Small numbers breeding in Rhodes grass with Chestnut-breasted Mannikin in February 1998. Judging on rump colour, a small number of birds appeared to be hybrids between Yellow-rumped and Chestnut-breasted Mannikins.

Chestnut-breasted Mannikin *Lonchura castaneothorax*

Very common around irrigated areas and Dunham Pilot Dam. Roost in large numbers (many hundreds) at Nancy's Crossing in stands of *Typha domingensis*. Nesting in paddocks of Pangola and Callide Rhodes grass on 9 February 1996. Many nests (five or six eggs) built in tops of grass, particularly where the occasional sorghum plant was mixed with other grass on dividing banks in paddocks in February 1998.

Pictorella Mannikin *Heteromunia pectoralis*

Moderately common in small flocks around irrigated areas. Common around Dunham Pilot Dam on 8 February 1996 and in July 1999.

Gouldian Finch *Erythrura gouldiae*

Uncommon. Six black headed birds near Dunham Pilot Dam in company of Masked Finch on 16 February 1996. Occasionally observed coming into water at Dunham Pilot Dam.

DICAEIDAE

Mistletoebird *Dicaeum hirundinaceum*

Moderately common in Acacia and Eucalypt woodlands.

HIRUNDINIDAE

Tree Martin *Hirundo nigricans*

Moderately common. Non-breeding visitor (March-October).

Fairy Martin *Hirundo ariel*

Moderately common to common, mostly over irrigated farmland. Twenty fresh nests under small bridge on 10 September 1996, also nesting under most culverts and small bridges around the irrigated areas in July 1999 and October 1999.

SYLVIIDAE

Australian Reed Warbler *Acrocephalus australis*

Moderately common at Nancy's Crossing, Diversion Dam and Tailings Dam. Nest (two eggs) in *Typha domingensis* growing in the Diversion Dam on 9 September 1996.

Tawny Grassbird *Megalururus timoriensis*

Common to very common on Farms 4, 5 and 6 where there is Pangola, Callide Rhode or Fine Cut Rhode grass growing. First recorded in February 1996. Nest (three eggs) in dense Rhode grass on 1 February 1998.

Brown Songlark *Cinchoramphus cruralis*

Uncommon. Observed on 7 May 1995 and occasional sightings since then including one on 9 October 1998.

Golden-headed Cisticola *Cisticola exilis*

Common, especially in pastured paddocks and in association with Zitting

Cisticola (February 1998 Zitting preferred low pasture and grassland). Many just fledged young fluttering out of the way of tractor during mowing on 28 December 1995.

Zitting *Cisticola* *Cisticola juncidis*

Common on Farm 5-6 and 5-7 in hay paddocks of Pangola and Callide Rhodes Grass where cattle have been excluded. Apart from close proximity to these paddocks there has been no other sightings on the property. Farm 5-6 and 5-7 were cleared of regrowth and planted with Pangola and Callide Rhode grass in 1993 and 1994. Previous to this the only planted area on Kingston Rest was that of Pangola on Farm 6-4 planted in 1982 and Farm 5-4 planted in 1975. Neither of these areas were excluded from cattle. First recorded in February 1996 with at least 8 on Farm 5-7. Breeding: nest (four eggs) on 1 February 1998, two nests (one with two young, one with two eggs) both 30cm above ground on 10 February, nest (three small young) in grass 45cm high, nest (four eggs) on 15 February 1998 and nest (four eggs) on 2 March 1998.

DISCUSSION

A total of 202 species (131 non-passerine and 71 passerine) have been recorded from the Kingston Rest area. This number can be compared with 121 species recorded for the Edgar Ranges (Johnstone *et al.* 1981) (south-west Kimberley), 128 species for Drysdale River National Park (Johnstone *et al.* 1977) (north Kimberley) and 155 species for the Gardner and Denison Ranges Coate *et al.* 1998 (south-east Kimberley). The richness of the avifauna in such a small area is mainly due to the diversity of habitats

especially the wetlands including the dams, channels and irrigation areas.

Overall Kingston Rest is a microcosm of the lower Ord River drainage and contains many of the features associated with the Ord Dam, Carr-Boyd Ranges, irrigated land around Kununurra and the savannah woodlands that extend out from it. It contains the Dunham Pilot Dam, spectacular scenery and gorges of the Saw Ranges and a variety of wetlands and irrigation areas. A number of waterfowl including the Plumed Whistling Duck, Wandering Whistling Duck, Green Pygmy Goose and Cattle Egret are probably visitors from the Ord irrigation region to the north and the Black Swan and Eurasian Coot are probably visitors from southern Australia. Some of the Kingston Rest wetlands such as the Tailings Dam tend to be open and shallow and have facilitated the colonisation of the area by the Magpie Goose, Purple Swamphen and Black-fronted Plover. They also contain a number of species that were declining in east Kimberley (possibly due to degradation of wetlands) prior to the construction of the Ord Dam and the associated irrigation areas around Kununurra including the Radjah Shelduck, Green Pygmy Goose, White-browed Crake and Comb-crested Jacana. Also the growing of pastures and crops have greatly increased the amount of habitat available to birds that would have originally been scarce e.g. King Quail, Red-backed Button-quail, Grass Owl, Yellow-rumped Mannikin, Chestnut-breasted Mannikin, Tawny Grassbird and Zitting *Cisticola* e.g. coarse blade grass such as Callide Rhodes with its upright leaves provides ideal feeding and nest building sites for Zitting *Cisticola*. Most of the latter have also no doubt colonised the area from the Kununurra region. The dense

gorge vegetation and thickets around the Dunham Pilot Dam are inhabited by the Emerald Dove, Green-backed Gerygone, White-browed Robin and Shining Flycatcher, all of which have a local and patchy distribution in east Kimberley.

Non-breeding summer visitors from the Palaearctic include Swinhoe's Snipe, Marsh Sandpiper, Common Greenshank, Common Sandpiper and Oriental Pratincole. The Dollar bird is a breeding summer visitor from the north and the Pallid Cuckoo and Tree Martin are non-breeding summer and dry season visitors from the south. Populations of some resident species, including Sacred Kingfisher and Rainbow Bee-eater are greatly augmented by winter visitors.

OTHER FAUNA

Fish are plentiful in the dams and waterways in the study area and include Sooty Grunter (*Hephaetus jenkinsi*), Spangled Perch (*Lecopotherapon unicolor*), Freshwater Herring (*Nematalosa erebi*) and Barramundi (*Lates calcarifer*) – mainly in the Dunham River.

Crustaceans. Cherabin (*Macrobrachium rosenbergii*), a freshwater prawn are in all waterways and dams.

Invertebrates. Several varieties of fresh water snails belonging to the genera *Lymnaea* and *Isidorella* occur in the Dunham Pilot Dam. Fresh water mussel (*Velesunio wilsonii*) are common in all dams.

Reptiles. Freshwater Turtle (*Emydurus australis*) are very common. Freshwater Crocodile (*Crocodylus johnstoni*) are common and nest in sandbanks along Arthur Creek in the Gorge (freshly made nests with eggs on 9 September 1996, and young hatching on 10

December 1998). As far as is known there are no Saltwater Crocodile (*Crocodylus porosus*) apart from those in the Dunham River. Other reptiles common to the area include Mulga Snake or King Brown (*Pseudechis australis*) Olive Python (*Liasis olivaceus*), Black Whip Snake (*Demansia atra*), Brown Tree Snake (*Boiga irregularis*) and Blue-tongue Lizard (*Tiliqua* sp.). Goulds Monitor (*Varanus gouldii*) and Water Monitor (*Varanus mertensi*) are often seen at the dams and along the waterways.

Mammals. Along Arthur Creek and in the Gorge there is usually a colony of Little Red Flying-fox (*Pteropus scapulatus*). There were approximately 3,500 on 6 February 1997, and a very large concentration of at least 100,000 in the Gorge on 30 October 1999. Black Flying-fox (*Pteropus alecto*) vary in numbers from a few hundred to many thousands (approximately 1,500 on 6 February 1997 and 30 October 1999). Antilopine Wallaroo (*Macropus antilopinus*) are occasionally seen in the Saw Ranges. Agile Wallaby (*Macropus agilis*) are common over much of the area. Northern Nailtail Wallaby (*Onychogalea unguifera*) are reasonably common around the edges of the irrigated areas near Farms 4 and 6 and are occasionally caught up in a hay mower. The rat (*Rattus* sp.) is occasionally found over irrigated areas. Western Chestnut Mouse (*Pseudomys nanus*) are common over much of the irrigated area. The tail of a Sugar Glider (*Petaurus breviceps*) was found near Arthur Creek on 20 June 1999. Dingoes (*Canis lupus dingo*) are reasonably common and control measures aimed at reducing their numbers are necessary when attacks on stock become too prevalent. Feral Cats (*Felis catus*) are commonly seen over the whole area.

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